

PROCEEDINGS OF THE CLUB

MEETING OF MARCH 20, 1929

This meeting was held at the Museum Building of The New York Botanical Garden. The meeting was called to order by President Denslow at 3:30 P.M.

Dr. Graves spoke of a proposed amendment to Subdivision 2 of Section 1425 of the Penal Law of the State of New York, which will add the small and large yellow lady's slippers, the showy lady's slipper, and the fringed and closed gentians and ferns to the list of plants to be protected in New York State; also the hart's tongue fern to be protected in Onondaga or Madison Counties. Members were urged to write to their senators to vote for the passage of this bill, and on the motion of Dr. Graves the club voted that the matter of notification of the members about this pending bill be left in the hands of the secretary.

"Notes on some New Marine Algae from Brazil" was the title of a paper by Dr. Marshall A. Howe of the New York Botanical Garden and Professor William Randolph Taylor of the University of Pennsylvania, presented by Doctor Howe in the absence of Professor Taylor. The algae in question were obtained by dredging off the coast of Brazil, mainly near Cabo Frio, in 1872, by the so-called Hassler Expedition. The Hassler was the name of a steamship belonging to the Coast Survey of the United States. Professor Louis Agassiz of Harvard University was invited to accompany the Hassler on a voyage from Boston to San Francisco by way of the Straits of Magellan. From his friends in Boston, he raised a fund of \$20,000 for defraying the expenses of zoological collections on this voyage and organized a small party, one of whom was the Count Pourtalés, who had charge of the dredging operations. Dr. Thomas Hill, ex-president of Harvard University, was in charge of the chemical and physical work of the expedition and Agassiz's report states that "Dr. Hill made, also, a most valuable and admirably preserved collection of marine plants, gathered at every anchorage where time was allowed for landing." Some of the marine algae of the Hassler Expedition apparently unstudied hitherto, have recently been entrusted to Professor Taylor for naming, in which study Dr. Howe was invited to cooperate. Several

species that appear to be new to science were exhibited, together with photographs and detailed sketches of microscopic structure. It is expected that the paper will soon be published.

Mr. C. W. Emmons of Columbia University followed with an account of "The Cytology of *Cicinnobolus Cesatii* DeBary." *Cicinnobolus Cesatii* DeBary is one of the Fungi Imperfecti falling in the form family Sphaeropsidae, but presumably an Ascomycete and of special interest since it is parasitic on another Ascomycete. It is an intracellular parasite of the Powdery mildews, growing inside the hyphae of the latter and transforming mycelial hyphae, conidiophores, and ascocarps of the mildew into pycnidia which bear the spores of *Cicinnobolus*. It also invades cells and intercellular spaces of the host of the mildew. It was found abundantly infesting *Erysiphe Cichoraccarum* on *Helianthus Tuberosus* and collections were made from a few other hosts. Good fixation was obtained with Flemming's weaker fixatives, and Flemming's triple stain gave characteristic staining reactions.

The parasite causes a granular degeneration of the host protoplasm.

The pycnidia vary in size and shape according to the organs in which they are built and the stage of development at which invasion occurred. The spores seem to be borne endogenously, nuclear divisions in the spore mother cell being followed by the pushing out of the cell wall into a projection which is then abstricted as a spore. This suggests spermatium formation, yet these are spores which apparently propagate the fungus. They germinate readily in distilled water and DeBary has observed that they infect hyphae and spores of mildew.

Late in the season rather thick-walled resting cells are formed in parenchymatous masses on the leaf surface, in the epidermal and trichome cells of the leaf, and in its intercellular spaces. Material collected in the spring shows perithecia imbedded in the dead leaf tissue. These are believed to be the sexual fruit structure of *Cicinnobolus*.

The fungus, although known commonly as an intracellular parasite within a fungus which is itself an obligate parasite, grows and fruits on glucose and peptone agar.

FORMAN T. MCLEAN
Secretary

MEETING OF APRIL 2, 1929

This meeting was held at Columbia University with an attendance of twenty.

Dr. B. O. Dodge gave an illustrated talk on his fungus hybrids, and showed microscopic slides to further demonstrate them. His observations that sex differentiation and the segregation of conidial characters took place at different divisions of the mother cell caused lively comment and discussion.

After the meeting, refreshments were served by the committee.

FORMAN T. McLEAN
Secretary

MEETING OF APRIL 17, 1929

This meeting was held at the Museum Building of The New York Botanical Garden. The meeting was called to order by President Denslow at 3:30 P.M.

Dr. N. L. Britton, Director-in-Chief of The New York Botanical Garden, spoke on "Botanical Studies in Porto Rico" with especial reference to studies carried on there during the past winter, with Mrs. Britton. His narrative will be published in *Journal of The New York Botanical Garden* for May, 1929.

Dr. P. W. Zimmerman of the Boyce Thompson Institute, Yonkers, New York, spoke on "Special Phases of Vegetative Plant Propagation."

Vegetative propagation is the multiplication of plants by means of vegetative parts such as stems, leaves and roots. The most common method is to place a piece of stem in moist sand and keep it supplied with water until new roots are produced. The rooted cutting is then transferred to soil to establish a new plant of the same type as that from which the cutting was taken. This eliminates variation such as is characteristic for plants originating from seed. Hybrids do not come true from seed, but when propagated vegetatively the new individuals have all the characteristics of the mother plant.

The problem is that not all plant types can be grown from

cuttings and our best hybrids are likely to be the stubborn ones. Often ten per cent of a collection of cuttings of a certain variety will root and perhaps 90 per cent of another variety, but seldom do 100 per cent of a large collection respond according to our wishes.

In a study of the effect of factors governing response of holly (*Ilex opaca*) we found many variables. First of all not all the cuttings of a collection from any one tree will form roots. A 60 to 70 per cent response is common for the best trees. Second, when we compare one tree with another there appears to be a regular variation for each tree. Whether the variation is due to inherent causes or whether the possibilities for selecting uniform cuttings is greater in one case than in another is not known. The fact is that they vary.

The best time to propagate holly is from August to January 1 in this section of the country. Collections coming in after January 1 have often shown frost injury and have done poorly. Current growth about 4 to 5 inches in length is better than other age wood though good results may be had with two-year-old wood attached where there is a short growth of current year stem. Even four- or five-year-old stems may be used but the percentage of rooting will be less with such material.

Cuttings of evergreen holly must have a few leaves to assist in root production. Stems of material taken in October, 1928, were very low in starch but on December 15, when the cuttings were rooting an abundance of starch was found. At the same time starch is increasing reducing sugars decrease so that the end of the experiments the amount of sugar is much less than at the beginning.

Extra light from 1,000 watt nitrogen bulbs for 6 hours each night while the cuttings were in the medium greatly increased root growth and in some varieties increased the percentage of rooting. There was an indication that the longer the illumination period, the better for cuttings. Care must be taken, however, to prevent drying since the electric lights have a tendency to lower the humidity of the air over the cuttings.

Temperature best for rooting holly cuttings ranges from 65° to 75°F. Some rooting can be obtained at higher or lower tempera-

tures but best results can be had at approximately 70°F. At the right temperature rooting begins after 3 weeks but for practical purposes the cuttings should be left in the medium for three months. One of the greatest problems is to prevent drying since holly transpires water very rapidly. Newly potted plants should be kept in high humidity houses or cases for two or three weeks before being exposed to dry air.

Plants grown from cuttings taken in December usually make good shoots in April. They often flower during the first season and if properly handled the berries resulting will ripen at Christmas time. Since holly is dioecious it is necessary to propagate both types at the same time so that the staminate flowers are ready when the pistillate plants are flowering. Hand pollination is necessary if the plants are in a greenhouse.

Other results shown concerned the effects of extra light on lilac, Taxus, Andromeda, Azalea and Camelia. All of these responded well to extra illumination. Grape cuttings with leaves were compared with cuttings from which all buds had been removed. The results were that budless cuttings grew succulent roots of large diameter and without secondary roots, while the leafy cuttings had many fibrous roots. The picture showed a striking difference and it was suggested that possibly some special substance was made in the leaves which controls the type of roots produced.

FORMAN T. McLEAN
Secretary

MEETING OF MAY 7, 1929

This meeting was held at the American Museum of Natural History. The meeting was called to order by President Denslow at 8:20 P.M.

The following new members were unanimously elected: Miss Camilla Passow, 782 East 175th Street, Bronx, New York and Mr. W. S. Bourn, Boyce Thompson Institute, Yonkers, New York.

Mr. Norman Taylor gave a very interesting account of his recent botanical work in Brazil, and illustrated it both by lantern

slides and with material which he had gathered during the trip.

The meeting was adjourned at 9:30 P.M., after which refreshments were served by the entertainment committee.

FORMAN T. MCLEAN
Secretary

NEWS NOTES

Dr. Nathaniel Lord Britton has resigned as director of the New York Botanical Garden and as secretary of the board of managers in order to devote more time to private research, especially on the vegetation of Porto Rico and the Virgin Islands. Dr. Britton has served as director-in-chief of the garden since it was organized in 1896, and was elected secretary of the board of manager two years before the garden was actually started. The growth and development of the garden is largely his work. Incidentally he has been interested in the beautification of the city and has helped in plans for planting and caring for the city trees. In connection with his work in the garden Dr. Britton has made more than twenty trips to the West Indies, collecting hundreds of thousands of specimens for the herbarium of the garden.

Dr. Elmer D. Merrill, director of the Botanical Garden and of the experiment station of the University of California, is to succeed Dr. Britton as director of the Garden.

Dr. Leigh H. Pennington, professor of forest botany at the New York State College of Forestry, Syracuse, died suddenly in Washington on April 23, at the age of fifty-one years. He was on sabbatical leave and had been employed by the government as expert forest pathologist in the study of the white pine blister rust. He had taught at the College of Forestry for fourteen years. (Science)

Dr. A. S. Hitchcock, of the U. S. Department of Agriculture, left for South Africa on June 8. He will attend, by invitation, the South African Association for the Advancement of Science at Cape Town and Pretoria and will give a paper on the "Relation of Grasses to Man." Later he will spend about a month collecting grasses on the tableland about Nairobi. He hopes to obtain